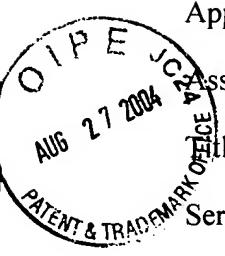


AUG 30 2004

~~DAE FW~~

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant(s): Junjie Gu  
Assignee: Sun Microsystems, Inc.  
Title: Updating Profile Frequency for Procedure Inlining  
Serial No.: 10/723,877 Filing Date: November 26, 2003  
Examiner: Unknown Group Art Unit: 2121  
Docket No.: P8940 Customer No.: 33438

Austin, Texas  
August 27, 2004

MAIL STOP PETITIONS  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

PETITION FOR FILING DATE

Sir:

Applicant hereby petitions that the filing date of November 26, 2003 be assigned to the above referenced patent application. Applicant asserts that a complete application was submitted on November 26, 2003, which included eleven (11) sheets of drawings, as evidenced by the copy of the stamped postcard which is attached hereto as Exhibit 1.

Also enclosed is a copy of the Response to Notice of Incomplete Nonprovisional Application and accompanying documentation which is being filed under separate cover.

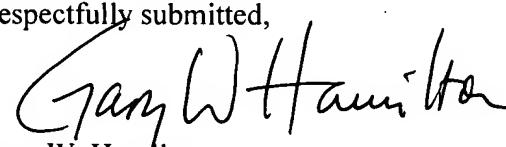
Applicant believes no fee is required since the application is entitled to a filing date of November 26, 2003; however, if any fee is required, the Commissioner is hereby authorized to charge the required fee or credit any overpayment to Deposit Account 502264.

If there are any questions regarding this Petition, please telephone the undersigned at (512) 338-9100.

EXPRESS MAIL LABEL NO:

EV469744327US

Respectfully submitted,

  
Gary W. Hamilton  
Attorney for Applicant(s)  
Reg. No. 31,834



22278 U.S. PTO  
10/723877



112603

MAIL STOP PATENT APPLICATION  
COMMISSIONER FOR PATENTS  
P.O. BOX 1450  
ALEXANDRIA, VA 22313-1450

Inventors: Junjie Gu  
Title: Updating Profile Frequency for Procedure Inlining  
Attorney Docket: P8940  
Customer No.: 33438

Enclosed:

- This Return Receipt Postcard
- Check for \$810 for Filing Fee and Assignment Recordation Fee
- Transmittal Letter
- 19 page(s) Specification (not including Claims)
- 4 page(s) Claims
- 1 page(s) Abstract
- 11 sheet(s) of Drawings
- 2 page(s) Declaration For Patent Application and Power of Attorney
- 1 page(s) Recordation Form Cover Sheet
- 1 page(s) Assignment

GWH:tm

November 26, 2003

VIA EXPRESS MAIL NO.: EV324252571US

**Exhibit 1**

**COPY**

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE



Applicant(s): Junjie Gu  
Assignee: Sun Microsystems, Inc.  
Title: Updating Profile Frequency for Procedure Inlining  
Serial No.: 10/723,877 Filing Date: November 26, 2003  
Examiner: Unknown Group Art Unit: 2121  
Docket No.: P8940 Customer No.: 33438

Austin, Texas  
August 27, 2004

MAIL STOP MISSING PARTS  
COMMISSIONER FOR PATENTS  
P.O. Box 1450  
ALEXANDRIA, VA 22313-1450

RESPONSE TO NOTICE OF INCOMPLETE NONPROVISIONAL APPLICATION

Dear Sir:

In response to the Notice of Incomplete Nonprovisional Application dated July 7, 2004, the following documents are enclosed:

1. A newly executed Declaration and Power of Attorney;
2. Eleven (11) sheets of drawings;
3. A copy of the Notice of Incomplete Nonprovisional Application; and
4. A copy of the Petition for Filing Date submitted under separate cover to the Petitions Division.

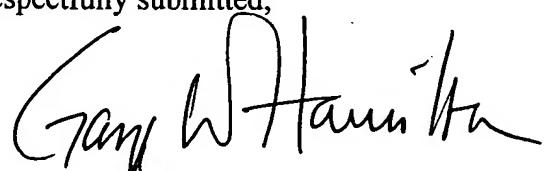
The Commissioner is hereby authorized to charge any additional fees which may be required, or credit any overpayment to Deposit Account No. 502264.

It is hereby respectfully submitted that the enclosed documents complete the filing of the above patent application. Please telephone the undersigned at (512) 338-9100 if there are any questions.

EXPRESS MAIL LABEL NO.

EV469744313US

Respectfully submitted,



Gary W. Hamilton  
Attorney for Applicant(s)  
Reg. No. 31,834



## UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE  
 United States Patent and Trademark Office  
 Address: COMMISSIONER FOR PATENTS  
 P.O. Box 1450  
 Alexandria, Virginia 22313-1450  
 www.uspto.gov

APPLICATION NUMBER	FILING OR 371 (c) DATE	FIRST NAMED APPLICANT	ATTORNEY DOCKET NUMBER
10/723,877	11/26/2003	Junjie Gu	P8940

33438  
 HAMILTON & TERRILE, LLP  
 P.O. BOX 203518  
 AUSTIN, TX 78720

## CONFIRMATION NO. 9330

## FORMALITIES LETTER



\*OC000000013159002\*

Date Mailed: 07/07/2004

## NOTICE OF INCOMPLETE NONPROVISIONAL APPLICATION

## FILED UNDER 37 CFR 1.53(b)

A filing date has NOT been accorded to the above-identified application papers for the reason(s) indicated below.

All of the items noted below and a newly executed oath or declaration covering the items must be submitted within **TWO MONTHS** of the date of this Notice, unless otherwise indicated, or proceedings on the application will be terminated (37 CFR 1.53(e)). Replies should be mailed to: Mail Stop Missing Parts, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

The filing date will be the date of receipt of all items required below, unless otherwise indicated. Any assertions that the item(s) required below were submitted, or are not necessary for a filing date, must be by way of petition directed to the attention of the Office of Petitions accompanied by the \$130.00 petition fee (37 CFR 1.17(h)). If the petition states that the application is entitled to a filing date, a request for a refund of the petition fee may be included in the petition. Petitions should be mailed to: Mail Stop Petitions, Commissioner for Patents, P.O. Box 1450, Alexandria VA 22313-1450.

- The application was deposited without drawings. 35 U.S.C. 113 (first sentence) requires a drawing "where necessary for the understanding of the subject matter sought to be patented." *Applicant should reconsider whether the drawings are necessary under 35 U.S.C. 113 (first sentence).*

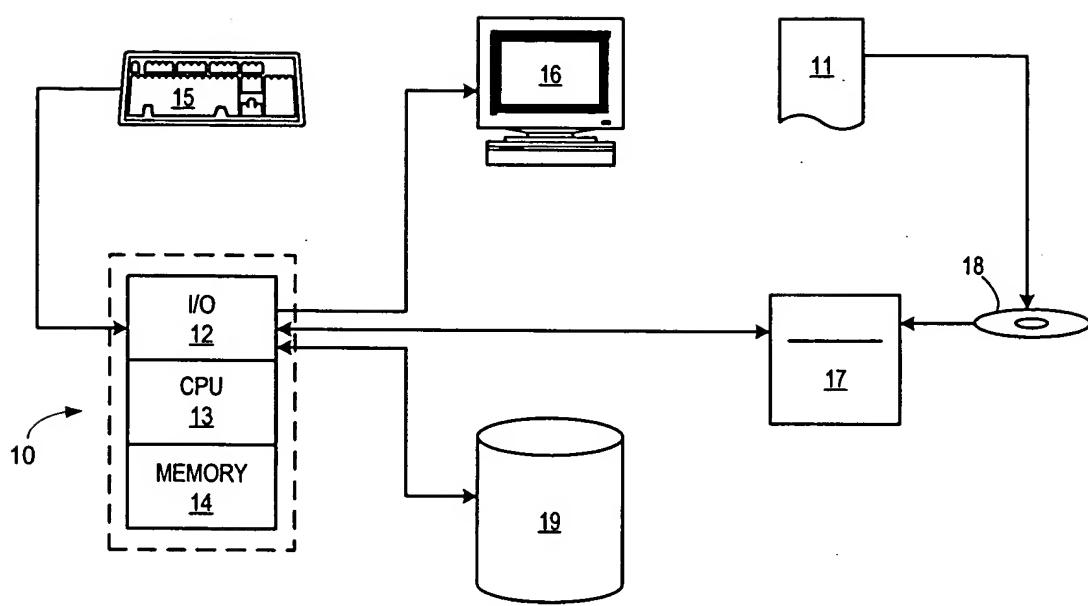
Replies should be mailed to: Mail Stop Missing Parts  
 Commissioner for Patents  
 P.O. Box 1450  
 Alexandria VA 22313-1450

*A copy of this notice **MUST** be returned with the reply.*

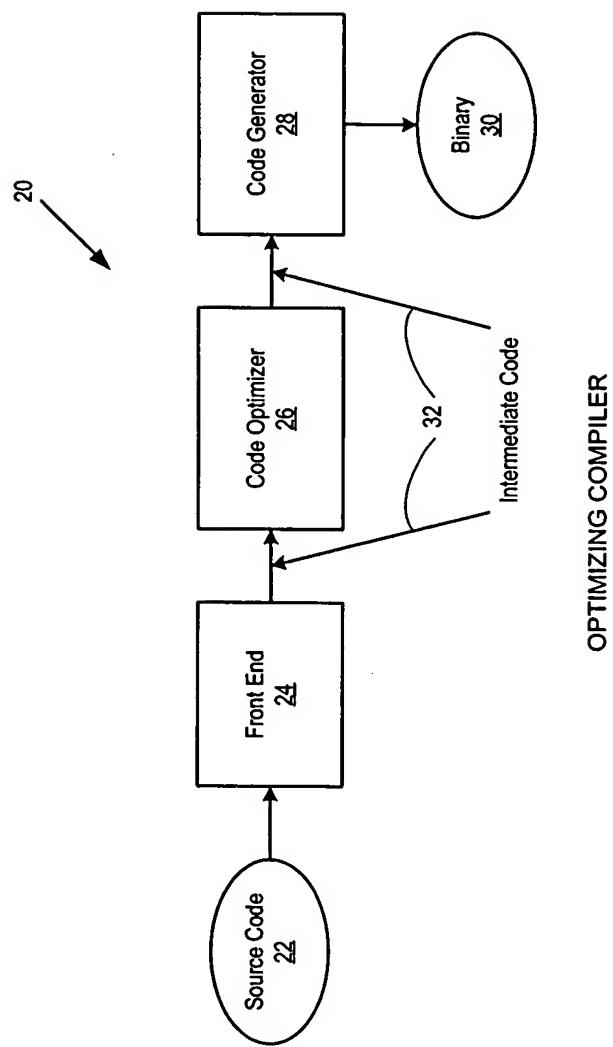
*T. TU*  
 Customer Service Center  
 Initial Patent Examination Division (703) 308-1202

DOCKETED  
 7/16/04  
 RESPONSE DUE 9/17/04

**PART 2 - COPY TO BE RETURNED WITH RESPONSE**



**Figure 1**



**Figure 2**

OPTIMIZING COMPILER

Fig 3. Compilation Process of Profile-Directed Optimizations

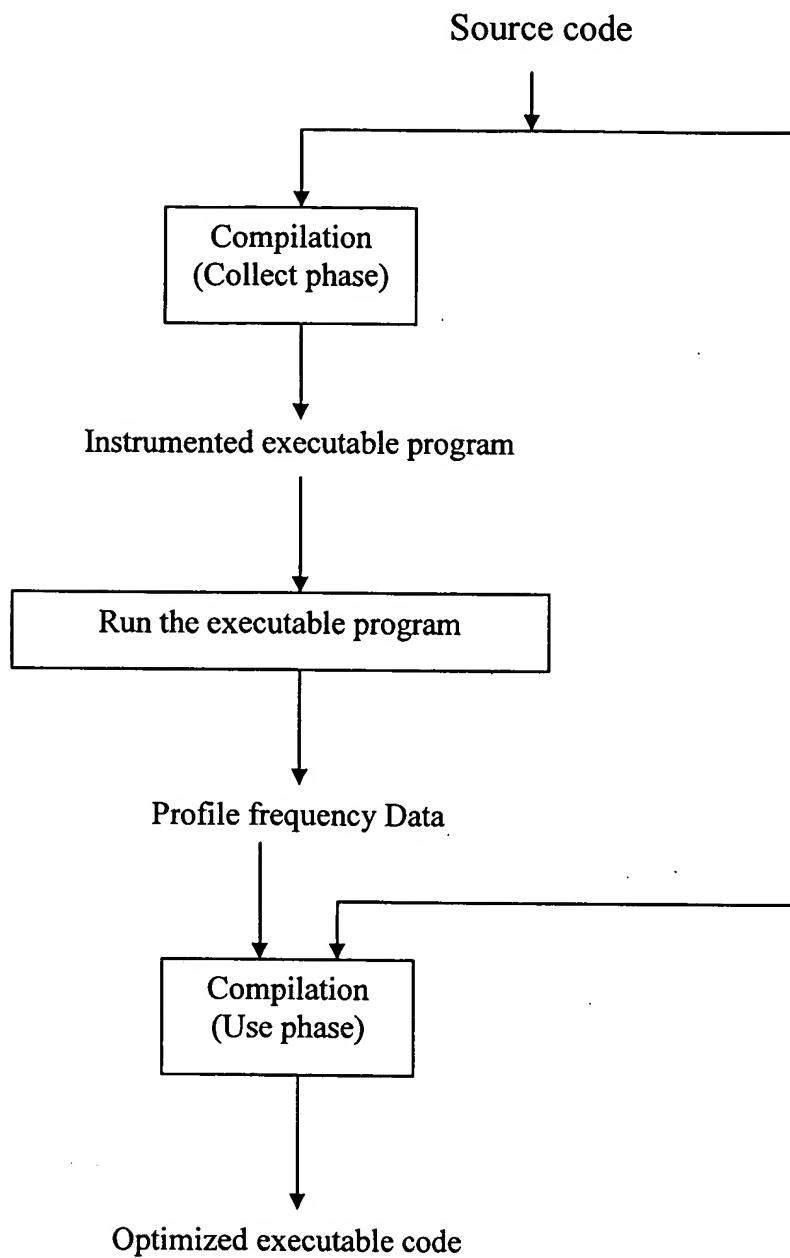
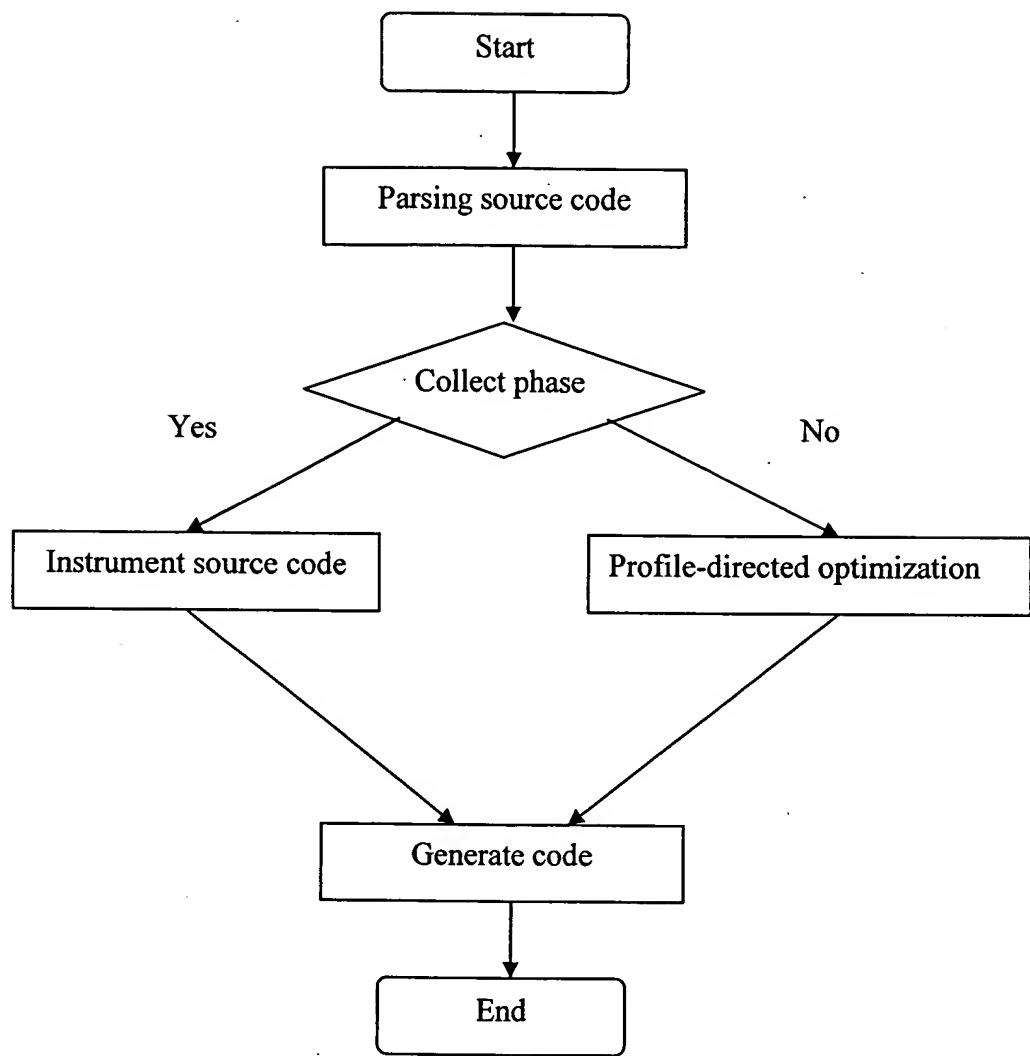
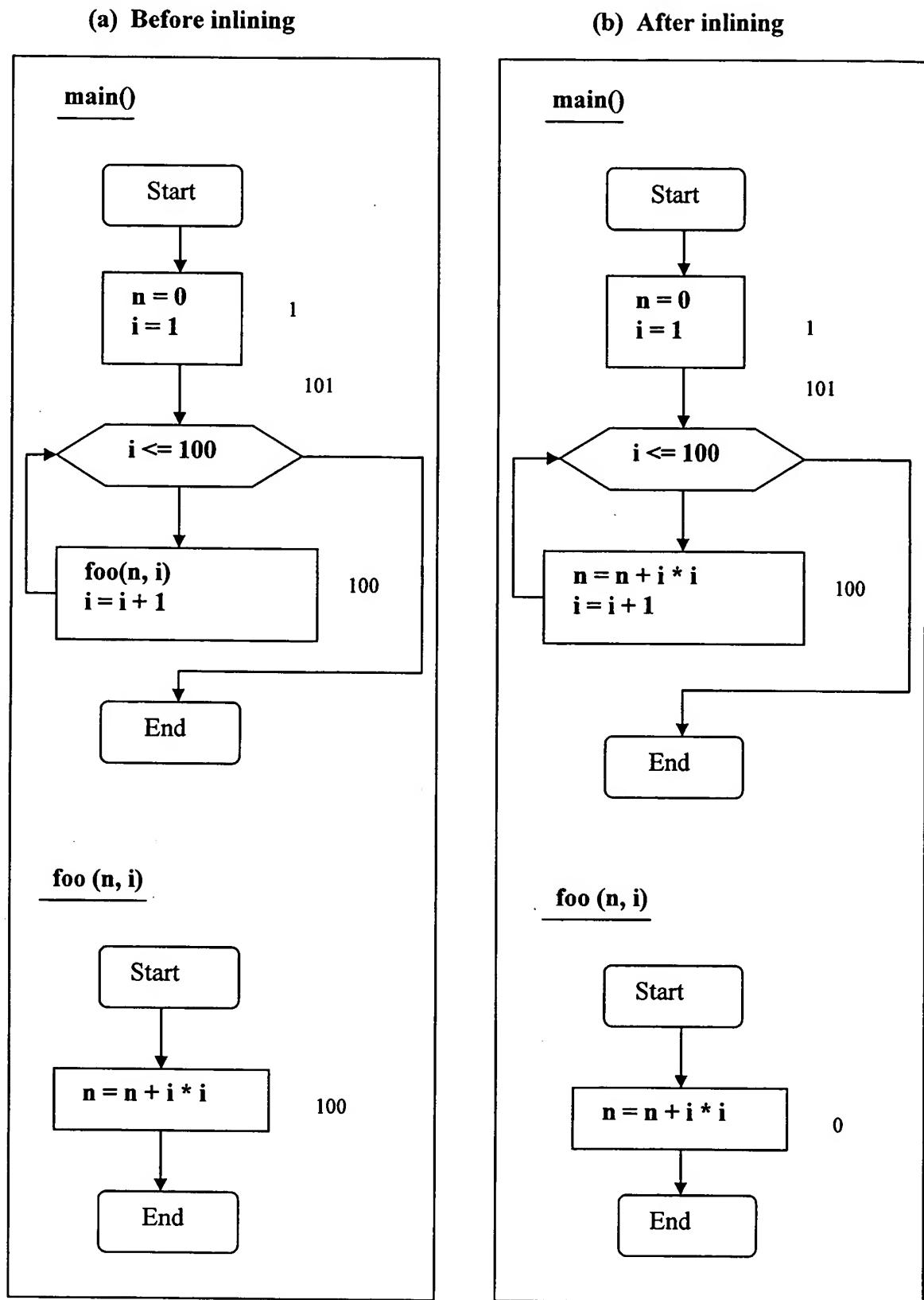


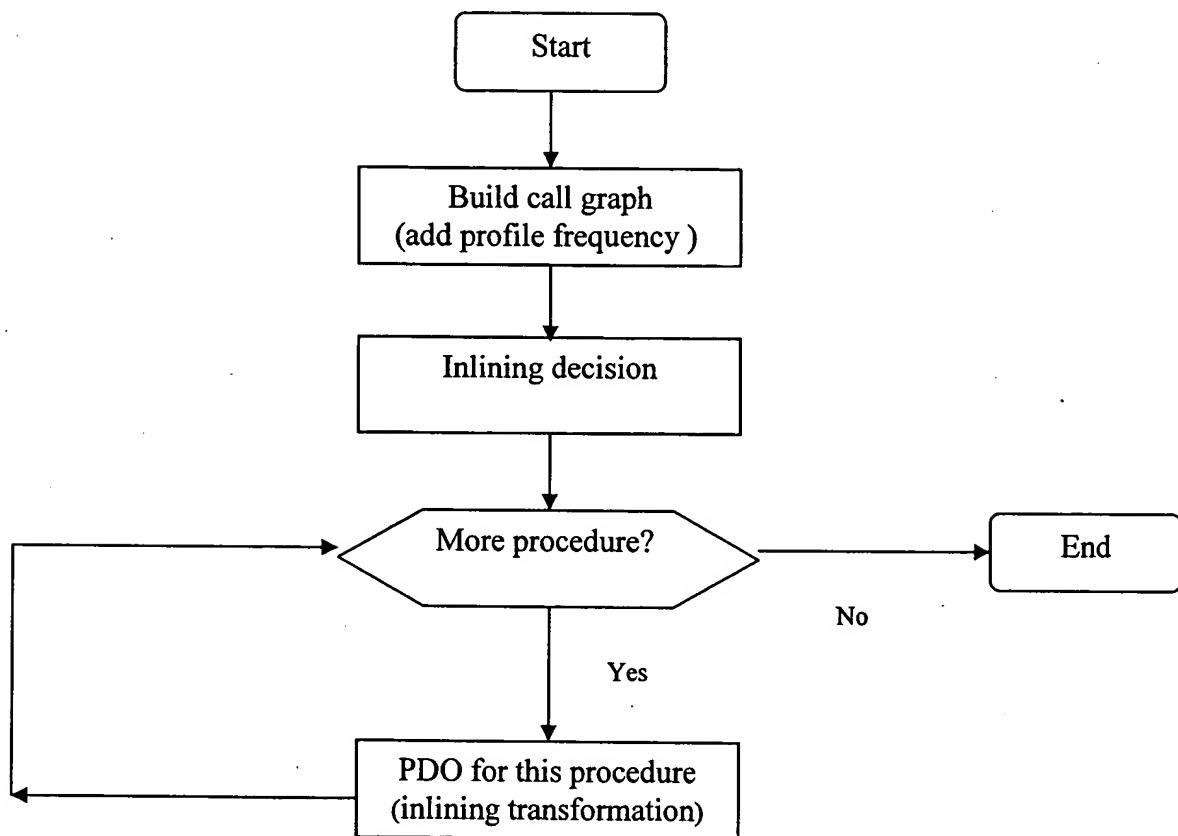
Fig 4. Compiler Components: collect phase and use phase (prior art)



**Fig. 5 Frequency change before and after inlining**



**Fig 6. Profile-Directed Optimizations (PDO) (prior art)**



**Fig 7. Example of Call graph and IP**

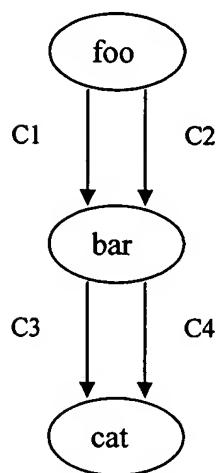
**Fig 7(a) Original Code**

```
foo() {  
c1: bar(1);  
c2: bar(3);  
}  
  
bar(n) {  
c3: cat(n);  
c4: cat(n+1);  
}  
  
cat (m) {  
<body of cat(m)>  
}
```

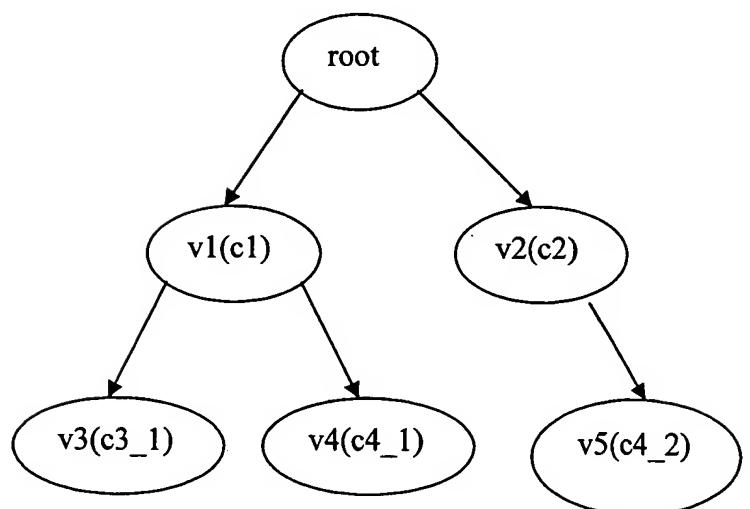
**Fig 7(b) After Inlining**

```
Foo() {  
<body of cat(1)>  
<body of cat(2)>  
c3_2: cat(3)  
<body of cat(4)>  
}  
  
bar(n) {  
cat(n);  
cat(n+1);  
}  
  
cat (m) {  
<body of cat(m)>  
}
```

**Fig 7(c) Call Graph**



**Fig 7(d) IP(foo)**



## Fig. 8 Inlining Original Procedures

Fig. 8(a) Original Procedures

Fig. 8(a) Original Procedures

```
main () {          foo() {          bar () {  
    foo();          bar();  
}  
}
```

Fig. 8(b) Inlining original bar into foo

```
main () {          foo() {          bar () {  
    foo();          }          }  
}
```

Fig. 8(c) Inlining original foo into main

```
main () {          foo() {          bar () {  
    bar();          }          }  
}
```

**FIG. 9 Updating Frequency**

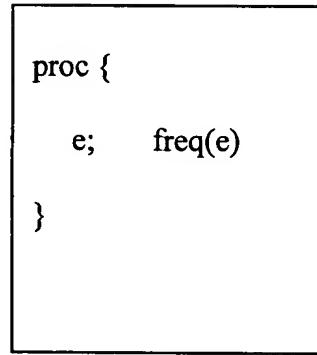


Fig 9(a)

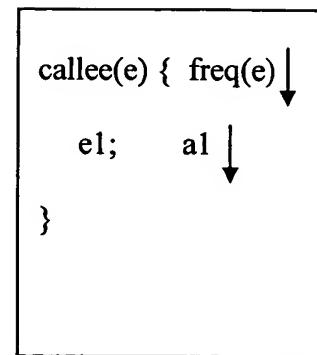


Fig 9(b)

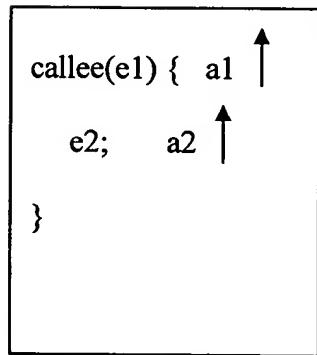


Fig 9(c)

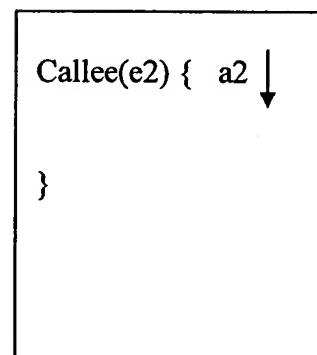


Fig 9(d)

**Fig. 10 Example of Applying the Algorithm**

Fig. 10(a) Original procedures (frequency is number after colon)

```
proc() { :1          foo() { :1          bar() { :101          cat() { :101
  e1: foo() : 1        for (i=0; i<100;i++)    e4: cat() : 101
  e2: bar() : 1        e3: bar() : 100        }
}                      }
```

Fig. 10(b) Inlining e3 into foo

```
proc() { :1          foo() { :1          bar() { :1          cat() { :101
  e1: foo() : 1        for (i=0; i<100;i++)    e4: cat() : 1
  e2: bar() : 1        e5: cat() : 100        }
}                      }
```

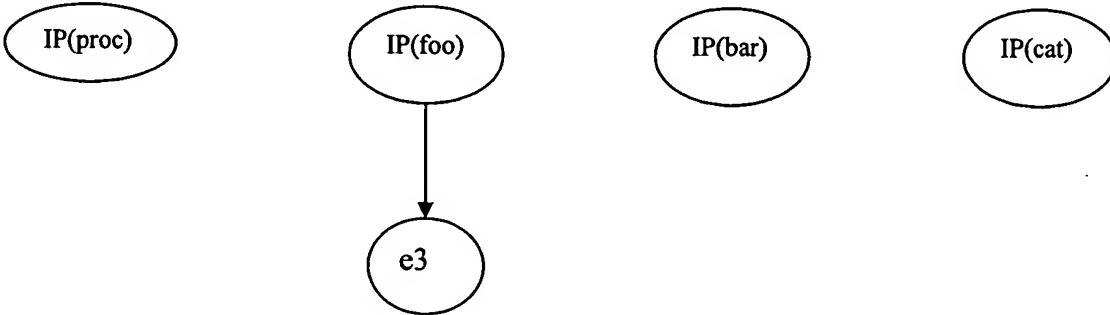


Fig. 10(c) Inlining e4 into bar

```
proc() { :1
  e1: foo() :1
  e2: bar() :1
}
foo() { :1
  for (i=0; i<100;i++)
  e5:  cat() :100
}
bar() { :1
}
cat() { :100
}
```

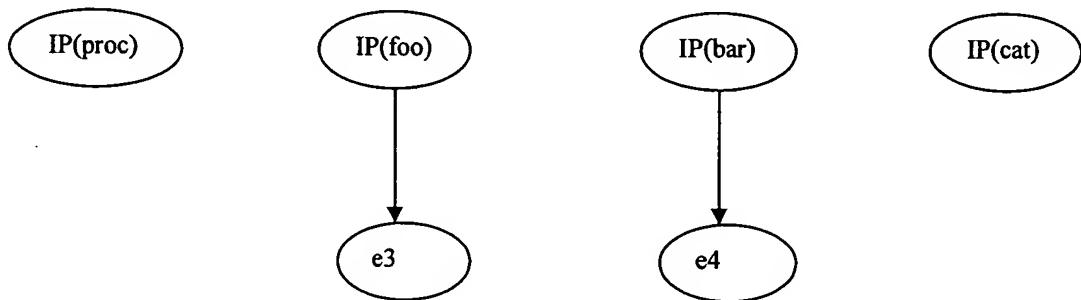
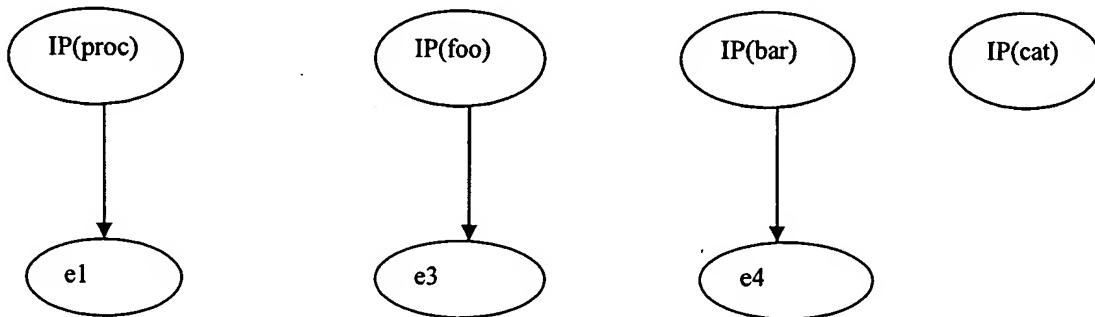


Fig. 10(d) Inlining e1 into proc

```
proc() { :1
  for(I=0;I<100; I++)
  e6:  bar() :100
  e2:  bar() :1
}
foo() { :0
  for (i=0; i<100;i++)
  e5:  cat() :0
}
bar() { :101
}
cat() { :0
}
```





Attorney Docket No.: P8940

**DECLARATION FOR PATENT APPLICATION  
AND POWER OF ATTORNEY**

As a below-named inventor, I hereby declare that:

My residence, post office address and citizenship are as stated below adjacent to my name.

I believe I am the original, first and sole inventor (if only one name is listed below) or an original, first and joint inventor (if plural names are listed below) of subject matter (process, machine, manufacture, or composition of matter, or an improvement thereof) which is claimed and for which a patent is sought by way of the application entitled:

**UPDATING PROFILE FREQUENCY FOR PROCEDURE INLINING**

which (check)  is attached hereto.  
 and is amended by the Preliminary Amendment attached hereto.  
 was filed on 11/26/2003 as Application Serial No. 10/723,877  
 and was amended on \_\_\_\_\_ (if applicable).

I hereby state that I have reviewed and understand the contents of the above identified specification, including the claims, as amended by any amendment referred to above.

I acknowledge the duty to disclose information, which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56.

I hereby claim foreign priority benefits under Title 35, United States Code, § 119(a)-(d) of any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America listed below and have also identified below any foreign application(s) for patent or inventor's certificate or any PCT international application(s) designating at least one country other than the United States of America filed by me on the same subject matter having a filing date before that of the application(s) of which priority is claimed:

Prior Foreign Application(s)			Priority Claimed	
Number	Country	Day/Month/Year Filed	Yes	No
N/A			<input type="checkbox"/>	<input type="checkbox"/>

I hereby claim the benefit under Title 35, United States Code, § 119(e) of any United States provisional application(s) listed below:

Provisional Application Number	Piling Date
N/A	

I hereby claim the benefit under Title 35, United States Code, § 120 of any United States application(s) or PCT international application(s) designating the United States of America listed below and, insofar as the subject matter of each of the claims of this application is not disclosed in the prior application(s) in the manner provided by the first paragraph of Title 35, United States Code, § 112, I acknowledge the duty to disclose information, which is material to patentability as defined in Title 37, Code of Federal Regulations, § 1.56, which became available between the filing date of the prior application(s) and the national or PCT international filing date of this application:

Application Serial No.	Filing Date	Status (patented, pending, abandoned)
N/A		

Attorney Docket No.: P8940

I hereby appoint the following attorney(s) and/or agent(s) to prosecute this application and to transact all business in the United States Patent and Trademark Office connected therewith: Stephen A. Terrile (32,946); Gary W. Hamilton (31,834); Robert W. Holland (40,020); Michael R. Cannatti (34,791); Kent B. Chambers (38,839); Kenneth Olsen (26,493); Timothy J. Crean (37,116); Alexander E. Silverman (37,940); Anita R. Gupta (38,275); Sean P. Lewis (42,798); Michael J. Schallop (44,319); Noreen A. Krall (39,734); Bernice B. Chen (42,403); Marc D. Foodman (34,110); Monica Ward (40,696); Elaine K. Lee (41,936); Hugh H. Matsubayashi (43,779); Paul D. Sorkin (39,039); Marilyn E. Glaubensklee (35,521); Andrew C. Chen (43,544); and Jeffrey L. Meyers (44,252).

Please address all correspondence and telephone calls to:

CUSTOMER NUMBER 33438

I declare that all statements made herein of my own knowledge are true, all statements made herein on information and belief are believed to be true, and all statements made herein are made with the knowledge that whoever, in any matter within the jurisdiction of the Patent and Trademark Office, knowingly and willfully falsifies, conceals, or covers up by any trick, scheme, or device a material fact, or makes any false, fictitious or fraudulent statements or representations, or makes or uses any false writing or document knowing the same to contain any false, fictitious or fraudulent statement or entry, shall be subject to the penalties including fine or imprisonment or both as set forth under 18 U.S.C. 1001, and that violations of this paragraph may jeopardize the validity of the application or this document, or the validity or enforceability of any patent, trademark registration, or certificate resulting therefrom.

Full name of sole inventor: Junjie Gu

Inventor's Signature: Junjie Gu

Date: 7/26/04

Residence: San Jose, California

Post Office Address: 5238 Union Avenue

Citizenship: P.R. China

San Jose, California 95124